

Interactive comment on “Multidecadal persistence of organic matter in soils: investigations at the submicrometer scale” by Suzanne Lutfalla et al.

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We thank the reviewer for his positive general comment on our draft. Regarding his/her specific comment, elemental analysis gives the C:N ratio of bulk SOM associated to the different clay fractions. We observed very substantial decreases of C:N ratios with time under bare fallow for bulk SOM associated to clays, C:N ratios reaching particularly low values (C:N below 5). We therefore concluded that persistent SOM in clay fractions is N-rich and we do not see which alternative explanation we can suggest. We agree that information based on the N K-edge stacks would have been interesting and useful. Unfortunately, as reported in the draft, for reasons we do not understand, we could not identify peaks in the N-edge region of the NEXAFS spectra. Besides, we are not aware of any study having successfully identified peaks in this region on natural SOM.

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We fully agree that it would need further research beyond the present study.

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